

REMARKSRegarding the amendments to the claims:

The amendment submitted in reply to the final Office action of February 16, 2007 was not entered. The amendments to claims 1 and 2, presented herewith, add no new matter. Claim 1 has been amended to specify a BET surface area range from 5 – 30 m²/g instead of from 5 – 35 m²/g. Claim 2 has been amended to specify a BET surface area range from 15 – 30 m²/g instead of from 15 – 35 m²/g. Support for a BET surface area upper limit of 30 m²/g is found in Example 1 on page 15 of the specification. As discussed below, these amendments puts the application in clear condition for allowance. It is respectfully requested, therefore, that these amendments be entered.

Regarding the rejection under 35 U.S.C. §103(a) over Mohrschladt et al. (US 6,316,588) or Mohrschladt et al. (US 6,288,207):

The amendments make the scope of the claims precisely commensurate with the BET surface area of the titanium dioxide pellets used in example 1 of the specification. The unexpected results of the present invention are evidenced by comparison of example 1 with comparative example 1. The catalyst used in comparative example 1 had a BET surface area of 50 m²/g. US 6,316,588 discloses that catalysts 4 and 5, are TiO₂ extrudates of 100% and 84% anatase, respectively.¹ US 6,316,588 explains that “[a]ll the experiments were carried out in a multistage Miniplant apparatus ... [where t]he first process stage (1) ... was completely packed with Raschig ring packing elements ... or with titanium dioxide pellets (catalyst 4). The pellets were 100% TiO₂ in the anatase form and had a ... specific surface area of about 50 m²/g.”²

With regard to catalyst 5, a TiO₂ extrudate of 84% anatase, prepared in line with the description in Ertl, Knözinger, Weitkamp: “Handbook of heterogeneous catalysis,” VCH Weinheim, 1997; page 98ff, reference might be made to another portion of US

¹ US 6,316,588 at column 16, indicated lines 15 – 16.

² US 6,316,588 at column 16, indicated lines 41 – 52.

6,316,588, which states that “[p]articularly preferred catalysts have the following properties: 100% of anatase; 0.3 ml/g pore volume; 0.02 μ m average pore diameter; 32 N cutting hardness; 116 m²/g BET surface area or 84% by weight of anatase; 16% by weight of rutile; 0.3 ml/g pore volume; 0.03 μ m average pore diameter; 26 N cutting hardness 46 m²/g BET surface area.”³ The examiner seems to have concluded that because catalyst 5 is a TiO₂ extrudate of 84% anatase, prepared in line with the description in Ertl, Knözinger, Weitkamp., it would have a BET surface area of 46 m²/g. Such a conclusion is not necessarily true, as is evidenced by the difference between the surface area of catalyst 4 and the surface area of the particularly preferred catalysts having 100% anatase cited above. No surface area is disclosed for catalyst 5, and catalyst 5 is never employed in any of the examples presented in the reference. On the other hand, the catalyst actually used in the examples of US 6,316,588, catalyst 4, has a specific surface area of about 50 m²/g.

In other words, the comparison on pages 14 – 15 of the present specification of a catalyst according to the present invention (BET surface area of 30 m²/g) with a catalyst having a BET surface area of 50 m²/g is equivalent to a comparison of a catalyst according to the present invention with the catalyst of US 6,316,588 having the lowest exemplified BET surface area. The MPEP makes clear that “[a]n applicant does not have to test all the compounds taught by each reference....”⁴ Thus, the comparative tests reported on pages 14 – 15 of the present specification are sufficient to permit a conclusion respecting the relative effectiveness of applicant's claimed compounds and the compounds of the cited references.

The examiner has expressed concerns regarding the showing of unexpected results presented in the present specification, arguing that “the evidence of unexpected results are ... not persuasive [because] smaller particles (higher BET) are expected to be carried away [with the] polymer at a higher rate than larger particles.”⁵ In response applicants respectfully assert that the examiner's assumption that particles with higher BET surface areas are always “smaller particles” is erroneous. Indeed, the examiner has incorrectly correlated surface area and particle size. By way of a simplistic example,

³ US 6,316,588 at column 7, indicated lines 4 through 10 (emphasis added).

⁴ MPEP §716.02(e).

⁵ Page 2, line 4 – 5 of the present advisory action.

compare a golf ball and an identically sized ping-pong ball. A golf ball would have a “higher” surface area, due to its dimples. Yet, both the golf ball and the ping-pong ball would have the same “particle size.” Thus, the examiner’s disputation of applicants’ showing of unexpected results is based on a technical misunderstanding that would not have been shared by a person of ordinary skill in the art.

Applicants have stated under oath in the present specification that:

Surprisingly, it has been found that the reduction in catalyst activity claimed in the prior art for the BET surface area of the catalyst of the present invention does not occur, the catalyst activity in the process of the invention in fact being just as high as in the process described in WO 99,38906, WO 99/38908, and WO 01/09224.

Applicants have also demonstrated that a surprising reduction in the titanium dioxide content of polymer is achieved by the process according to the present invention.

Especially in light of the unexpected results achieved when the claim limitations (which are not disclosed by either of the references) are employed, applicants respectfully submit that the present application is in condition for allowance. Favorable action is solicited.